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ABSTRACT

A study investigated the efficacy of the mnemonic graphic organizer strategy on the vocabulary acquisition of beginning and advanced adult English-as-a-Second-Language (ESL) students. Subjects, 48 adults enrolled in two adult ESL classes at a metropolitan adult school, were randomly divided into control and experimental groups. The experimental treatment was conducted in three 45-minute sessions over a period of 1 week. Subjects in the control and experimental groups received the same instruction in the topic material, but subjects in the experimental group used a mnemonic graphic organizer strategy for vocabulary acquisition. Results indicated that the use of graphic organizers across high and low ability groups was as effective in subjects' vocabulary acquisition as the regular classroom technique, and was significantly effective with beginning ESL students over and above the regular classroom instruction. Findings suggest further support for the utilization of the cloze technique for ESL proficiency testing. (Six tables of data are included; 6 appendixes containing a description of the steps in constructing and using graphic organizers, the student consent form, pre- and post-test vocabulary lists for both classes, instructional material on how to use reference material, the graphic organizer used in the study, data from the study, and 92 references are attached.) (RS)

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THE EFFECTS OF INSTRUCTION USING A MNEMONIC GRAPHIC ORGANIZER ON VOCABULARY ACQUISITION AMONG ADULT ENGLISH AS A SECOND LANGUAGE STUDENTS

Ann Marie Kaelin
B.A., California State University, Sacramento, 1983

PROJECT

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THE EFFECTS OF INSTRUCTION USING A MNEMONIC GRAPHIC ORGANIZER ON VOCABULARY ACQUISITION AMONG ADULT ENGLISH AS A SECOND LANGUAGE STUDENTS

A Project

by

Ann Marie Kaelin

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Department of Teacher Education

Abstract

of

THE EFFECTS OF INSTRUCTION USING A MNEMONIC GRAPHIC ORGANIZER ON VOCABULARY ACQUISITION AMONG ADULT ENGLISH AS A SECOND LANGUAGE STUDENTS

by

Ann Marie Kaelin

Statement of the Problem

The major concern of this study was to investigate the efficacy of the mnemonic graphic organizer strategy with adult ESL students enrolled in a public education program. An intensive review of literature did not reveal experimental research involving adult ESL students in this setting which concentrated on vocabulary acquisition using a mnemonic organizer.

Sources of Data

This project is supported by research from periodicals, Educational Resources Information Center (ERIC) Reports, books, personal communications, and doctoral dissertations. Research data have been gathered from investigator-generated measures of vocabulary recognition and identification.

Conclusions Reached

The study demonstrated that the use of the graphic organizer across high and low ability groups was as facilitative to vocabulary acquisition as the regular

classroom technique, and was significantly effective with beginning ESL students over and above the regular classroom instruction. The findings lent further support for the utilization of the Cloze technique for ESL proficiency testing.

Committee Chair's
Signature of Approval _____

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A most special acknowledgement to the students and their wonderful teacher. Their eager support and active participation in the research made the study a most pleasurable and memorable experience.

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Chapter 1

INTRODUCTION

Reading is a very complex process involving many physical, intellectual, and often emotional responses. While reading readiness at all grade levels has been greatly reviewed over the past ten years, little research has been conducted to determine what type of preparatory reading skills would best produce vocabulary comprehension in adult English as a Second Language (ESL) students. Data on the acquisition of reading skills and assessment of reading ability among ESL students appeared to be limited and contingent upon the effects of the first language in which the student first learned to read. However, empirical evidence leaves little doubt that complex mental communication is required in order for the learner to interact with setting and content of the text. One of the best ways to develop comprehension and reading versatility is vocabulary development (Goodman & Goodman, 1978). Research suggested that vocabulary instruction in a first or second language has developed from a semantic perspective. Gipe (1979) has been credited with various methods of vocabulary development. He found that whether students were good or poor readers, the context methods were superior because

of the natural link between vocabulary knowledge, conceptual knowledge, and context. It is in this natural, meaningful context that children first learn language.

This study concentrated on the utilization of an interactive graphic mnemonic strategy for vocabulary acquisition. It has been assumed that this strategy can be taught to adult ESL students. The research assessed adult learners' ability to recognize and identify key vocabulary pertinent to content material with the aid of a graphic organizer. The graphic organizer has been claimed to provide motivation and structure necessary to turn poor readers into good readers (Herber, 1970). It is motivating because it contains very few words that in turn serve as cues to information needed for comprehension of content material. Memory and retention are improved because the pictorial structure also acts as a cuing device. Moreover, it aids the student's understanding of what the instructor considers important in the textbook. It arranges words to show relationships and provokes spontaneous discussion with the students. In addition, it motivates the student to talk, thus improving language learning. (See Appendix A for steps in constructing and using graphic organizers.) This strategy enhances the constructive process of meaning and

aids the learner in speedy and efficient recall of learned vocabulary (Estes & Vaughn, 1978).

Organization of the Study

This project is completed in four chapters. Chapter One includes the Introduction, Statement of the Problem and Delineation of the Project. Chapter Two includes a review of the professional literature including Theoretical Foundation, Practical Applications and Applied Research. Chapter Three presents the methodology used in the study. Chapter Four includes the analysis of the data and results, including conclusions, discussion, and recommendations and limitations of the study. The appendices contain the original materials used in the study.

Statement of Problem

Research in the area of vocabulary acquisition has become increasingly popular in recent years and many studies have focused on the student's cognizance. The learner's ability to ingest knowledge, recycle it with new data and increase the learning process is of special concern to most educators, especially those who work with ESL students.

McLaughlin (1978) suggested that rules and habits of the first language hinder and confuse the acquisition of a second language and that the learner must have a strong command of the first language before processing a second language. However, Ervin Tripp (1974) suggested that adult learners, ESL or others, rely on background or prior knowledge to aid them in acquiring and expanding new knowledge. He based this suggestion on the fact that differences in learning are qualitative in nature, and that social and affective factors influence cognitive maturity (1974).

Sacramento is an urbanized rural community that is a setting for a large multi-cultural population. This variety of ethnicity constitutes the majority of the elementary, secondary and adult public school population in many areas. While working in a local public school district, this author observed that remedial elementary and adult English speaking students who had difficulties with vocabulary acquisition and reading comprehension responded favorably to visual spatial mnemonic strategies such as a graphic organizer. The question arose whether or not ESL students enrolled in a public adult education program would respond equally as well. An investigation of research supported the query. There were some research projects and reports on mnemonic keyword

strategies utilizing graphic organizers, prior knowledge and semantic aspects of memory in content areas with elementary school children and college students. However, further investigation revealed little or no research with adult ESL students. What few cases there were, related to elementary and college students, and some adult vocational education students. For example, a recent monograph was presented by Bernitz (1985) on ESL which focused on reading development for non-native speakers on all levels. It stressed the reader's knowledge of the world and how it interacted with the learner's comprehension of schemata. His subjects were young children and university students enrolled in an experience-based vocabulary program.

Earlier in the literature, yet addressing vocabulary acquisition of ESL adults, Lillian Grobel (1967) compared her advanced Hebrew-speaking students' reading comprehension in their native language with their reading comprehension in the target language. Her conclusion was that the development of word-recognition skills was necessary for reading comprehension.

For the majority of Sacramento's adult ESL students, academic success and advancement in grade level is slow and difficult. School is a short-time activity. Many of them return immediately to their jobs and neighborhoods

where they resume speaking their native language with their native co-workers, neighbors, friends and family. Responding to these environmental challenges to the retention of English vocabulary, the author located the adult ESL classes in which to conduct a research project using a mnemonic graphic organizer strategy.

Purpose Statement

The purpose of this study was to determine the effect of instruction using a mnemonic graphic organizer strategy on vocabulary acquisition among adult ESL students. Research suggested that a strong relationship exists between word knowledge and reading comprehension. Graphic organizers, structured overviews, and keyword techniques are instructional strategies mentioned in the literature shown to be effective for vocabulary instruction. This thesis reviews research on these strategies and discusses the topics of vocabulary recall, word concept and vocabulary understanding.

Research Questions and Hypotheses

The research questions addressed in this study were: 1) Will the graphic mnemonic strategy have an effect on the recognition of vocabulary on a recall (listing) test? 2) Will the graphic mnemonic strategy have an effect on

the identification of vocabulary on a test using a modified Cloze format? and 3) Will the graphic mnemonic strategy enhance vocabulary understanding for both beginning and advanced ESL students? In order to answer these questions the following hypotheses were generated:

1) There will be no significant difference in vocabulary recall scores (List: definition format) between students taught using standard methodology and students taught the vocabulary words using the mnemonic graphic organizer strategy.

   1a) There will be no significant difference in students' vocabulary recall scores between the advanced and the beginning ESL classes, regardless of treatment.

2) There will be no significant difference in vocabulary identification scores (presentation of new vocabulary in a modified cloze format) between students taught standard methodology and students taught the vocabulary words using the graphic mnemonic strategy.

   2a) There will be no significant difference in the students' vocabulary identification scores between the advanced and the

beginning ESL classes, regardless of treatment.

Assumptions

There were five assumptions in this thesis: 1) Random selection was constituted by the students' recent enrollment in ESL classes. 2) There were no significant differences in ESL ability level among advanced ESL students, as affected by culture of origin or literacy in their first language. 3) First language (whether alphabetic or ideographic) would not significantly affect response of subjects to treatment. 4) Gender differences would not significantly affect response of subjects to treatment. 5) Age differences will not significantly affect response of subjects to treatment.

Chapter 2

REVIEW OF RELATED LITERATURE

Piecing together and understanding of first and second language reading is as challenging as assembling a large jigsaw puzzle. It involves organizing hundreds of pieces. How one perceives each piece dictates how well one comprehends and performs the language act (Barnitz, 1985). The Goodmans (1978) and Hudelson (1981) suggested that while reading is a similar process across languages, teachers must understand linguistic diversity and its role in learning to identify word meaning and learning to read. This chapter gives a review of research literature which leads to the present study. The first section lays the Theoretical Foundation for the mnemonic graphic organizer. It will examine the evolution of verbal/visual processing from schema theory to paired-associative learning. The Applied Research subsection contains literature reviews which provide a basis for the use of the advance organizer, structured overview, mnemonic keyword, and graphic organizer as instructional strategies. The Practical Application subsection examines five types of organizer strategies which aid in the development of keyword identification and vocabulary comprehension.

Integrated into this review is the relationship of language or languages in which the student learns to the comprehension of verbal and written content. Finally, these theories and the applied and practical research which extend and support them, is linked throughout this review to the psycholinguistic process of reading and the application of that process to the mnemonic graphic organizer.

Theoretical Foundations

Interest in literacy has become of increasing national concern. The massive influx of ESL speakers over the last decade has compounded the number of non-native speakers in need of basic English reading skills. Discussion of theoretical issues relative to reading have become of major importance and research studies have also been directed to the components of reading comprehension.

Basic research suggests that reading is a psycholinguistic and sociolinguistic process, and that we should be able to better understand the cultural differences that inhibit the students' academic development (Bleich, 1988; Cazden, 1972). When the teacher and the student do not recognize these differences, there could be interference in their communication (Hymes, 1967). Published studies have shown

too, that development of communication skills such as classroom brain storming of key vocabulary concurrently with synonyms and family related words, aids in creating pictorial scenes which manifest themselves as permanent memory data (Roberts, 1980).

An area of concern to psychologists and educators is the mental associations necessary to produce fluent and comprehensive communication. As a result, the past two decades have seen research studies concentrating on schema theory which focuses on the learner's reasoning ability. This theory stresses the importance of background or prior knowledge. An extension of schema theory is that of paired-associative learning theory. This theory focuses on the relationship of nonverbal imagery and language (Paivio, 1970; Paivio, Ville, & Madigan, 1968). Applications of the theory relate to vocabulary development and comprehension with its success dependent on the student's ability to identify the inter-relationships of concept and meaning. Of course, this development is based on the assumption that the more world experience the student has, the more fluent his/her language could be. Thus, the psycholinguistic theory of reading is linked to schema theory and paired-associative theory as it relates these cognitive theories to the act of reading and vocabulary development.

Schema Theory

One construct of primary importance to cognitive psychologists, linguists and others is that of cognitive schemata and its function in the comprehension process. Schema theory is quite complex and many different models have been proposed by researchers (Bartlett, 1932; Bruner, 1978; Fowler, 1981; and Goodman, 1976 & 1978). One of the major areas of learning which these models have attempted to explain has been the development of cognitive reasoning and the ability to recall past experiences and past reactions.

Bartlett's (1932) theory of schema suggested that remembering sets the basic formula for establishing prior knowledge. He approached memory as a biological function which is constructed and not reproduced. He believed that the relationship of imagery and thinking produced language, and that a schema is an ongoing process that builds from background or prior knowledge. Schemata develop through all human senses. He also believed that attitude is the element which triggers sensory images. These images are the determiners of schemata. The ability to image develops an intimate relationship between perception and a relatively permanent memory structure. Schemata are reservoirs of both verbal and pictorial prior knowledge and are adaptable to change when consciousness

commands. They are perceptively altered by new information and have been accepted by research as mnemonic devices or organizers that house the learner's experiences and reactions to ordinary behaviors (Bartlett, 1932).

Paired-Associative Learning

The present dominance of cognitive psychology has produced strong affirmation regarding the important role memory plays on cognition. Schemata have been viewed as mnemonic devices for vocabulary recall as well as for retention of content meaning (Bartlett, 1932). How one perceives the past indicates how well one remembers. This chronology is not literal however; it is the combination of remembering experiences, or developing details, and extending those elements to new inventive thoughts or situations: "sensory images," which produce the function of words (Bartlett, 1932).

Paivio's paired-associate learning theory has also been one of the bases of imagery and verbal mediation research in a number of studies. Paivio, Yuille, and Madigan (1968) investigated the relationship between image awareness and concreteness of the noun as a function of meaningfulness. Their work confirmed that imaginal and verbal mediators could be easily discovered and utilized with concrete stimuli; however, with abstract pairs of stimuli, imaginal mediators were more difficult to

discover and verbal mediators harder to utilize because they were superficial and ineffective in the absence of imagery. They concluded that imagery is a paramount factor in verbal learning situations (Yuille & Paivio, 1967).

DeBona (1986) wrote that since thinking is the basis for comprehension, students' ability to understand meaning through the interpretation of symbols dictates how well they comprehend. Language requires a logical system of perceiving symbols and demands that the student initiate perceptual thinking in order to translate written words into language. Schema theory and associative-learning theory, as well as DeBona's research, suggest that imagery is a component of constructive and creative thinking, and the brain is a "recognition and meaning machine" which allows the student's mind to create a mental map before making a decision (DeBona, 1986).

Bruner (1966) addressed imagery in terms of an "ikonic" model of information processing which he suggested is based on the Gestalt theory of incorporation of perception, experience, and memory. His research concluded that the student's ability to assimilate stored information dictates his/her ability to verbally communicate. He suggested that this process is the

precursor which dictates how the student creates and translates language.

Flavell (1963) suggested that cognitive organization is a composite of multiple interrelationships. He identified the necessary elements of interrelationships as being actions, concepts, and meanings. However, the development of organization and defined images differs considerably as thought processes go from one stage to another, and schemata continue to develop and modify with environmental data.

Psycholinguistic Connections

Research suggests that prior knowledge provides the basis for developing meaning. Researchers and educators agree that acquisition of knowledge is consistent with schema notions, and in order for the student to complete the psycholinguistic process the readers must use their prior knowledge or background knowledge (Smith, 1973).

Some imply that a "good reader" must be language proficient (Peters & Levin, 1986). Smith (1973) viewed reading as a "psycholinguistic guessing game." He reported that reading is a "trade-off between visual and nonvisual information" (1973, p. 7). He suggested that if the reader concentrated on visual structure and identification of words, less meaning would be processed.

Another noted reading theorist, Kenneth Goodman, also examined imagery, memory and learning. He, too, termed this relationship "psycholinguistic" (1978). He described this process as a set of rules that had to be learned at two levels; surface structure--the sounds or written form of language, and deep structure--the meaning of sounds and forms. He used the term "syntax" as an avenue to deep structure which makes language comprehensible. He suggested that thinking or analysis of comprehension is the element which provides a working memory for language, speech, and writing comprehension. In 1976 he suggested that the deep structure process precedes and is not paramount to word identification. The learner has the ability to remember meanings, elements and relationships that are not apparent in surface structure. It is this process that prepares the student for the reading process.

Thus prior knowledge, linguistic as well as experiential, is critical to comprehension of vocabulary when it is presented in isolation or in context. The mnemonic graphic organizer used in this study focused on connecting students' prior knowledge to new vocabulary being learned.

Applied Research

The research literature has long accepted that, when learning a second language, there can be influence, for good or ill, from the first language. Lillian Groble's (1967) research with advanced ESL adult students focused on a comparison of their reading comprehension in their first and second languages. Her concern was with the overall complexity of reading components. She concluded that her students' level of second language reading comprehension correlated with their native language reading comprehension. She credited this status to the students' prior knowledge. However, she cautioned that while prior knowledge had a significant effect on a universal theme in expository prose, it might not be wise for proficiency testing in which content material is biased against the non-native student. In 1978, Kenneth Goodman and his wife, Yetta, worked with a group of rural American sixth graders whose language was a "stable rural dialect of English or a language other than English" (1978, p. 1). Their study reported that knowledge of individual word meanings was a primary factor responsible for reading comprehension.

This section of Chapter Two examines research which provides a basis for the use of advanced organizers, structured overviews, graphic organizers, mnemonic keyword

strategies and semantic mapping strategies for vocabulary acquisition. These techniques require mental and oral participation in the classroom; and, while practice may not make perfect, it certainly improves a skill.

Advanced Organizers

The role of prior knowledge in the acquisition of new information has drawn the attention of psychologists and educators for the past 20 years, and the empirical findings of knowledge-based teaching techniques designed to draw out prior knowledge have not been consistently positive. The first to be reviewed herein is Ausubel's advanced organizer technique which appears to foster knowledge-base literature processing (Ausubel, 1962). The advanced organizer is a pre-instruction of pertinent textual vocabulary in paragraph form. It has been used primarily in content area classes for vocabulary acquisition and to foster reading comprehension. This technique focuses on the introduction and presumable retention of unfamiliar but meaningful vocabulary in advance of content material in which the new vocabulary is used.

The advanced organizer is generally recognized as a legitimate procedure for assisting students in comprehending new material (Stauffer, 1969). It has the potential to work simultaneously with context clues and

concurrently with classroom communication (Stauffer, 1969). The organizer gives the student a general overview of material in advance of formal study. It has been successful at all grade and ability levels, and has been acclaimed as clarifying, stabilizing and organizing cognitive structures.

Barnes and Clawson (1975) reviewed and analyzed 32 studies of advanced organizers to determine whether or not they facilitate learning. The studies were in the areas of mathematics, science, and social science and included sixth grade through college level students. Their three-part review examined studies that reported statistical significance--positive and negative. The variables manipulated were length of time the strategy was used, students' abilities, and cognitive levels. Also included in the synthesizing article were recommendations for further research as a result of their analysis of the literature. They concluded that advanced organizers "did not facilitate learning" to a statistically significant degree. It is important that one keep in mind that statistical significance refers to the "probability" that the treatment will show some sort of significance, and practical significance is that which makes a judgment of the treatment's worth or value (Barnes & Clawson, 1975). They conceded that only teachers, authors or publishers

should make this judgment because of the uniqueness of the human element: people, time, place, and other basic operational activities. Specifically, however, they suggested that studies be over a period of more than ten days and that future research address levels of the cognitive domain.

Others have chosen to adjust the advanced organizer for different uses. Lawton and Wanska (1979) experimented with three types of organizers on classification learning with 237 rural children in kindergarten, third and fifth grades. Their purpose was to investigate the effect advanced organizers had on classification learning. Their studies concluded that the organizer produced superior effectiveness in relationships between content and structural requirements in learning materials (1979).

To summarize, the advanced organizer is a short introductory reading excerpt from a longer selection of instruction. It is designed to trigger the student's prior knowledge and establish thematic similarities between the material to be read and material familiar to the student. It also presents instructions on how this advanced information may actively be used as a learning aid. The organizer demands interaction between text and student and provides a processing structure. It is a useful tool that has the ability to produce greater

retention and comprehension of pertinent verbal content (Ausubel, 1960).

Structured Overview

Through the years researchers and practitioners have adapted the format of the advanced organizer with some researchers adjusting it into a graphic of key words and concepts. Barron (1969) labeled the graphic a structured overview. He modified the strategy to present concepts and vocabulary orally and visually. He suggested that this aids interrelationships of ideas and words so that the student may make his own analogies during reading. It is proposed that the reader not only understands the event and/or circumstance, but also has the ability to project logical results (Bean, Singer, Sorter & Franzee, 1986). This diagrammatic strategy makes new knowledge easier to remember and retrieve. The student learns to monitor comprehension and evaluate it analytically, make on-the-spot analogies and adjust them if necessary (Earle, 1969). What is especially beneficial to the instructor and student is that the organizer can be teacher generated or student generated.

Estes, Mills, and Barron (1973) described the structured overview as a preview of key vocabulary taken from a learning task and presented visually and orally. Its primary function was to focus on vocabulary concepts

which students had previously learned and to provide a foundation for vocabulary in content structures. They conducted a study which attempted to match the effects of the advanced organizer and the structured overview. The advanced organizer was an introductory paragraph composed of organized words that stimulated students' prior knowledge by provoking "subsuming concepts" which could be categorized and related to unfamiliar relationships encountered in context material. Another group of students used the structured overview to organize the "theme" of content material. They reported that while the structured overview and advanced organizer were similar in learning and retaining new content, the teachers might prefer the structured overview over the advanced organizer because it affords greater certainty of student comprehension. They based this on the fact that the advanced organizer teachers must hazard a guess about students' prior knowledge and experience. However, the structured overview demanded open discussion between students and instructors, enabling the instructor to evaluate student responses spontaneously during instruction and to adjust the presentation accordingly.

Graphic Organizer

The graphic organizer, too has become a by-product of Ausubel's advanced organizer. In 1986, Bartholomae and

Petrosky suggested that reading comprehension is not a process of one paragraph at a time. Rather it is based on the learner's relationship with the text: her/his ability to communicate multiple meanings and to be able to imagine and understand the intellectual value of content. They described this ability as being two-fold. There is the "external" literal translation, and "own vision"--the student's translation of meaning based on experience and prior knowledge. This ability enables the student to imagine and understand the intellectual value of content. The graphic organizer relates to this perspective in that it provides a visual/verbal spatial link between the text and the reader.

In 1970 Weisburg conducted a study with 96 eighth graders enrolled in Earth Science classes. The study was designed to examine the values of the advanced organizer and the graphic organizer. Half of the students were instructed with the advanced organizer, the other half utilized the graphic organizer. The results of this study strongly supported the visual graphic organizers and the advanced organizer was not significant in all groups involved in the study.

The graphic organizer as a strategy presumes that the student not only understands the event and/or circumstance, but also has the ability to project logical

results and retain unfamiliar but meaningful vocabulary introduced in advance of content material (Bean, Singer, Sorter, & Franzee, 1969). However, Herber (1970) suggested that the graphic organizer provides motivation and structure necessary to turn poor readers into good readers. This is possible because poor readers develop vocabulary skills best by analysis, recognition and meaning. He suggested further that these skills are learned simultaneously. This strategy is motivating in that it contains minimal keywords that, in turn, serve as cues to information needed for comprehension of content materials. Memory and retention are improved because the pictorial structure also acts as a cuing device. Moreover, it aids the students' understanding of what the instructor considers important in the textbook. It arranges words to show relationships and provokes discussion with the students, motivating the students to talk, thus improving language learning. Finally, this strategy enhances the constructive process of meaning and aids the learner in speedy and efficient recall of learned vocabulary (Estes & Vaughn, 1978).

Russell Stauffer (1969) viewed the graphic organizer as an attention-getting device which aided the student's deciphering and understanding of new and unfamiliar content. Illustrations and pictures such as those found

in graphic organizers elaborate word meanings and overall comprehension. Thus, schema are awakened and assimilated as new thoughts into a structured system which is repeatable and locked into memory.

Stauffer was convinced that interest aroused curiosity and promoted language readiness for reading. It was his belief that new words, illustrated by pictures, provoked oral language usage of keywords prior to reading and that conversations of this nature recall individual experiences. These experiences in turn motivated reading-thinking activities. He further suggested that as the student's experience matures, the student has the ability to reflect on her/his reading because the thinking aid facilitates conjectures about plot and content. He concluded that it is this cognitive structure which links present comprehension to past experiences and development of constructive concepts should be the first objective of education.

Mnemonic Keyword Strategy

In recent years there have been considerable investigations on mnemonic vocabulary learning by cognitive psycholinguists and educators. This strategy has been especially effective in the structure of verbs and adjectives as well as nouns (Goodman, 1976). Furthermore, it has been found to improve vocabulary

understanding from preschoolers to adults who were poor to good learners (Hall, Wilson & Patterson, 1981; Wolff, Peters & Levin, 1986). The keyword method has also proven its worth as an effective foreign language learning strategy with both adults and children (Atkinson & Rough, 1974; Pressley, Levin & Delaney, 1982).

Detailed accounts of mnemonic systems used by the ancient Greeks and Romans are found in the writings of Paivio (1970), Wittrock (1977), and Yates (1966). The basic component of their research records that memory systems used then are still intact. Today, research supports the claim that visualized or "vivid images" are more memorable than weak ones, supporting the use of visual/graphic organizers (Highbee, 1981; Paivio, 1970).

Cognitive psychologists and educators appear to be determined to develop new devices and systems to improve vocabulary-teaching techniques. Just as the advanced organizer fostered the development of the graphic organizer and structured overview, so too has the mnemonic keyword fostered the development of semantic mapping strategies.

Semantic Mapping, Webbing, and Feature Analysis

A review of research over the past twenty years indicated a resurgence of interest in vocabulary

instruction. It seems to have focused on the importance of vocabulary comprehension which is generally considered a crucial component of reading comprehension (Thorndike, 1971; Ausubel, 1960; Bartlett, 1932; Bruner, 1966; & Barron, 1969). Research has established specific teaching skills of new vocabulary that are conducive to improved word knowledge and reading (Smith, 1973; Earle, 1973; Goodman, 1976; & Flavell, 1977). What remains to be questioned is identifying what is the most effective mode of instruction. Both pictorial and graphic features have been used in classroom studies. Herber (1970) suggested that pre-reading discussion activities aid the student in connecting concepts of new words to oral communication. It not only stimulates word usage but also strengthens recognition and meaning. Most researchers agree that word knowledge is a major element in comprehension, and while numerous studies have been conducted in this area, few have focused on the effectiveness of vocabulary development training (Davis, 1972).

Several vocabulary teaching strategies: dictionary usage, context, and mnemonic devices have been empirically validated as effective for acquisition and development of vocabulary. Semantic webbing, semantic feature analysis and semantic mapping also focus on the learner's prior knowledge. Semantic webbing, which is similar to semantic

mapping (Bruner, 1978; Pearson & Johnson, 1984) is a process of organizing subsuming information. Freedman and Reynolds (1980) described it as a process which develops "visual displays of categories and their relationships" (p. 677). They suggested that it aids students in organizing and integrating concepts for meaning, and described it as having a "core question." From this core strands are projected. These strands are supporting evidence which students project from prior knowledge and what knowledge they have taken from content material. Freedman and Reynolds (1980), conducted a study using basal reader stories and concluded that students should be constructors and the teacher merely the guide who collates meaning to the study. However, it is important that together they decide what to add and when it is completed (Freedman & Reynolds, 1980).

The semantic feature analysis strategy draws on students' ability to mentally categorize individually stored words that relate to context words. In this pre- or post-reading activity, the teacher draws cells on the chalkboard which will contain "alike" words and words of opposite meaning taken from the text. Students participate by verbalizing their mentally stored words and the teacher incorporates them into the cells. It is assumed that this aids the readers in understanding context

(Pittelman & Johnson, 1985). Word knowledge has been defined by Pittelman and Johnson (1985) as that which the student knows and uses to comprehend text. What is also important in this process is how the student conceives and interprets the text. They suggested that new word knowledge is contingent on bridging new information with known information and the student's ability to make this relationship determines her/his ability to comprehend and expand knowledge.

Harste (1980) reported that semantic mapping develops "propositional analysis" or the relationship between units of meaning with context. He listed an analytical order of main ideas, facts, and modification of facts, and suggested that reading was a "complex social event." He further stated that semantic mapping provides the reader with a view of the semantic structure from which inferences may be made, but it does not give meaning.

Cleland (1981) described semantic webbing as a visual organizer of relationships which identify important issues that eventually become the foundation for classroom discussion. He incorporated the use of the advanced organizer in advance of the semantic webbing technique, and suggested that the versatility of the web helped basal readers identify and discuss key issues of content, encouraged expression of ideas, perception of relation-

ships, organizations of thoughts; and, that it gave more purpose to the reading task (1981).

Johnson, Pittelman, and Toms-Bronowski (Wisconsin Center for Educational Research, 1982), and Tsui, Chun Yin, Ying, Chin and Chin of the Taiwan Institute for Elementary School Teachers (1982), compared semantic mapping and semantic feature analysis with more traditional instruction. The studies were conducted with more than 1,000 fourth through sixth grade students using regular classroom text. The studies focused on vocabulary development based on prior knowledge. Both the United States study and the Republic of China study reported this to be an effective technique for vocabulary instruction, but only with those students who had strong background knowledge. The Republic of China study suggested that future studies use categories and words that are consistent with the students' language and culture. However, both studies concurred that the power of prior knowledge on vocabulary development was an imposing factor of the teaching strategy.

The central focus during the 1980's appeared to be on students' ability to access prior knowledge relative to topic theme and expand that knowledge through the acquisition of new keywords. This culminated in open classroom discussion (Heimlich & Pittelman, 1986).

Students draw from their cognitive structure prior knowledge which relates to a word from content (Stahl & Vancil, 1986). Ward (1988) suggested that this process was useful for adult students because lecture classes usually do not focus on open conversation. Also, students in these classes function at various reading levels and there is little or no action between students and instructor. This strategy does not work alone. It is developed during discussion of context vocabulary in the classroom (Stahl & Vancil, 1986).

The task of building vocabulary comprehension in reading involves reading beyond the printed page and literal responses (Toms-Bronowski, 1982). Research suggests that graphic types of strategies would be helpful in retrieving known words in context. In 1982 Toms-Bronowski investigated the "Effectiveness of Semantic Mapping Features Analysis with Intermediate Grade Level Children." Her study compared the traditional approach for vocabulary acquisition to the semantic mapping and semantic feature analysis strategies. She conceded that while these strategies had been used in the classroom, they had not been validated by research. The results of her study showed the semantic feature analysis groups to perform better than the semantic mapping and semantic mapping to be higher than the context groups. She

reported that the results and conclusions were with the "treatment analysis framework," and analysis revealed that the control group performed at a "significantly" lower level. Her findings concluded that semantic feature analysis and semantic mapping are effective teaching strategies for vocabulary acquisition. However, she stressed that her research was directed toward vocabulary instruction not a contextual analysis.

This subsection of Chapter Two summarized the importance of word knowledge as an important component of reading comprehension. These studies have suggested that students are more able to comprehend text if they have strong verbal ability, and this verbal ability appears to relate to the depth of the students' prior knowledge. This was validated by the stress on entire conceptual understanding that builds from words and elicits word meanings that interact with the text to produce comprehension for the reader.

Practical Application

Vocabulary development has been a challenge to educators and researchers for decades. It is a skill which communicates thought and comprehension and enables overall understanding of content material (Cleland, 1981). One primary question research has been asking is how words

are stored in memory banks and how they "bridge" with prior knowledge (Johnson, 1981). Prior word knowledge is a significant component of vocabulary comprehension and enables overall understanding of content material.

Research on reading in the content areas has often focused on strategies which developed keyword identification, vocabulary in context and comprehension. The success of graphic organizers, structured overviews, the mnemonic keyword strategy and semantic mapping strategies relies on the assumption that the student has a certain degree of background or prior knowledge. These strategies have been devised to aid advanced instruction of new or unfamiliar vocabulary as it pertains to broader concepts to be learned. They were created to help teachers provide systematic guidance for students before they read their textbooks.

Graphic Presentations

Understanding the systematic study of vocabulary and reading text is not easy. It requires the ability to analyze the organization of the material and see relationships. Research in the area of learning and instruction has introduced numerous strategies that may be used in learning content structure. Barron (1969) used the graphic outline to represent words and their importance during verbal discussion and called this

strategy "a structured overview." In 1969, Barron investigated the effects of graphic and prose advanced organizers with sixth through twelfth grade levels and found there were no significantly facilitative effects in comprehension of general science content. However, the structured overview was readily identified by the classroom teachers as a useful tool for differentiating instruction. Barron also suggested that the organizer aids the learner in drawing conclusions and in comparing and contrasting ideas. It stimulates illustrations or pictorials, supports and expands meanings of single words. The sequence develops keyword recognition and acts as an attention-getting device which aids the student in facilitating language, imaginative thinking and recall of past experiences (Barron, 1969).

Barron, Estes and Mills (1973) conducted another study which incorporated the use of the structured overview and the use of purpose questions. They examined the structure one uses to learn a course of study and determined that the classroom instructor first determines the major content principles students must comprehend, the concepts and details necessary to secure understanding of the principles, and then, by means of verbal discussion, s/he introduces cue words and word relationships in a graphic outline. The methodology for pre-teaching was to

select words crucial to content and demonstrate their relationships to major concepts and structure of theme, plot, characters, and setting. As opposed to Ausubel's organizer which focused on context clues for word understanding, Barron's organizer was an introductory pictorial-type structure. Teacher-oriented questions directed students' recall of prior knowledge and aided comprehension of unfamiliar content.

Earle (1969) studied the effects of the structured overview in ninth grade above average classes and seventh grade classes of average ability. Major differences were noted between the experimental and control groups, but were not statistically significant. However, the instructors had positive reactions to the strategy. In 1973 he experimented again by using vocabulary in a structured overview with seventh grade mathematics students. The strategy assisted the students in organizing prior knowledge and expanding new knowledge from keywords in content material. The evidence suggested that students experienced conceptual relationships with keywords from content material that was not of lengthy prose format, and that teacher-student interaction provided on-the-spot evaluation and adjustment (Earle, 1970).

In 1973, Earle and Barron incorporated the structured overview with skills teaching and extension activities. They concluded that the structured overview provided the framework for organizing new information, perceiving relationships of words to content in biology and developing analytical and sequential thinking. They stated that it increased the conceptual process, and identified productive and faulty thinking processes.

A key element to the structured overview, the graphic organizer and the mnemonic graphic organizer of this current research is that of graphic or pictorial presentation as a recall device. Over the years, a body of literature has accumulated demonstrating the facilitative effects of word imagery and verbal learning. High imagery or concreteness of a word is related to how easily a mental image may be formed of the reference the word represents. Studies of the function and level of imagery, however, have been confined to psychological research and verbal learning often of the paired-associate type (Bleich, 1984, 1988).

At present, the effects of word imagery have not been applied extensively in the study of reading, yet the facilitating effect of imagery in past research tasks would appear to be an important factor in teaching or introducing vocabulary.

It has been written that the process of assimilation requires external and internal factors (Barron & Barron, 1970), and non-verbal imagery is an internal factor that acts as a mediator to vocabulary comprehension (Samuels, 1979). Yuille and Paivio (1968) suggested that verbal associations can be stimulated by non-verbal imagery.

Russell Stauffer (1969) viewed the graphic organizer as an attention-getting device which aides the student's deciphering and understanding of new and unfamiliar content. Illustrations and pictures such as those found in graphic organizers elaborate word meanings and overall comprehension. Thus, schema awakens and assimilates new thoughts into a structured system which is repeatable and locked into memory.

Stauffer (1969) was convinced that interest aroused curiosity and promoted language readiness for reading. It was his belief that new words, illustrated by pictures, provoked oral language usage of keywords prior to reading and that conversations of this nature recalled individual experiences. These experiences in turn motivated reading-thinking activities. He further suggested that as the student's experience matures the student develops the ability to reflect during reading because the graphic organizer facilitates conjectures about plot and content. He concluded that it is the cognitive structure aspect of

the graphic organizer that links present comprehension to past experiences.

Mnemonic Keyword Devices

Mnemonic refers to any device or system for assisting or improving the memory. Devices are sometimes sanctioned when the material is factual and without possibilities for association, as when a teacher tries to get children to remember correct spelling, e.g., hear, ear. While there are some psycholinguists who believe mnemonic devices are not as effective as are understanding meaningful associations, the will to remember, and spaced recall, however there are equally as many who support this technique.

Paivio (1970) investigated the effectiveness of the mnemonic keyword strategy to the verbal process. He found that it requires the linking of word (acoustic) sounds to an image. This can be initiated by the instructor who can select an English word that sounds in part similar to the word to be learned. It has been claimed to produce superior recall in context yet requires a high degree of semantic processing of context cues (Daniel & Pressley, 1984).

As is the case in many research studies, the mnemonic keyword strategy has been subjected to close examination

and has received contradictory reviews. However, it continues to be studied and has been shown to be effective as a foreign language learning technique with adults and children. Hall, Wilson and Patterson (1981) examined the mnemonic keyword strategy in four experiments with undergraduate college students to test the effectiveness of mnemonic keyword for learning Spanish names. The first three experiments were conducted in free study type classes. Keyword lists were presented by the experimenters in both Spanish-English and Spanish. Students were instructed to "generate keywords." The experimenters reported that almost all students used "self-generated" English words which had semantic and perceptual characteristics.

It was generally agreed that the strategy was good for average and below students, but not so for "bright" students. Hall, Wilson and Patterson (1981), based this conclusion on the fact that students who were allowed to study freely did not perform as well. However, they conceded that the strategy might be more successful at college level when used "selectively along with other methods of study" (1981, p. 357). They also suggested that the keyword method be used as a supplement not as a replacement procedure.

Jones and Hall (1982) examined the effects of the keyword method to paired-associate (PA) type learning in history and science classes where students must recall events, people, places and things. The student-initiated and controlled keyword strategy proved successful in a standard curriculum in an eighth-grade setting. They reported that the training was lengthy (five weeks) and difficult. Students were required to generate and record their keywords and respective images. It is important that one keep in mind that the strategy requires cognitive skills and much of the learning could not be directly observed. The students were interviewed after the study was completed. The project was deemed to be successful and required little preparation with instructional materials; the students acquired the technique and the complex memory strategies (Jones & Hall, 1982).

The mnemonic keyword success relies on the learner's ability to integrate vocabulary with memory and the ability to remember the image that interacts with the meaning (Pressley & Levin, 1981). It has been effective in providing the student with a word/definition link (Pressley, Levin & Delaney, 1982). This technique has also been successful in other curriculum content. Shirberg, Levin and McCormick (1982) experimented with eighth-grade students reading short expository prose about

famous people and their accomplishments and found the keyword method increased students' recall of factual material.

Lippman and Shanahan (1973) studied the effects of paired-associate (PA) learning with pictorial materials on elementary students and concluded that the older children responded more successfully to the mnemonic process because they had broader background knowledge. As a result, they suggested that poor or "problem" readers and learning disabled students would need specific objects and pictures associative to keywords to facilitate vocabulary understanding.

In 1988, Konopak and Williams reviewed the keyword strategy with elementary and secondary students. They based the probable effectiveness of the strategy on Levin's (1981) three important assumptions: pictures improve learning; there is a relationship between the picture and the new content; and the importance of the student's characteristics, in how they generate visual images. Konopak and Williams found the keyword strategy effective in facilitating the learning of difficult information. They based their success on the teacher's ability to give explicit information and practice exercises, which incorporated instructional operations with mnemonics (1988).

Research has shown mnemonic keyword strategies to be effective with good and poor readers, particularly in the way they enabled students to personalize new content information. Further, as an alternative route for poor readers, the teacher can provide mnemonic pictures to enable students to self-generate visual images and facilitate learning.

Semantic Mapping Strategies

Research suggests the mental operations of formulating categorical relationships is a fundamental process of the human mind, which psychologists and educators term "schema" (Bartlett, 1932). Semantic mapping strategies propose to differ from advanced organizers, graphic presentations, and mnemonic keyword devices in that they have as a primary focus the lexical cognitive links one makes when comprehending a concept.

Semantic webbing, mapping and semantic feature analysis techniques are vocabulary strategies that incorporate prior knowledge and present new knowledge structured categorically in graphic form. While they are not pictorial as the mnemonic keyword strategy, they are teacher-directed activities that aid the access of new knowledge and improve the assimilation of new vocabulary with known vocabulary (Johnson & Pearson, 1984). They can be used for general vocabulary development as pre- or

post-reading activities and as an individual study skill (Johnson & Pearson, 1984).

Freedman and Reynolds (1980) described semantic webbing in almost the same terms of semantic mapping--a process of development and displaying words in "categories and their relationships." They used this strategy with basal readers and referred to it as a "prediction web" which created a purpose for extended reading, stimulated predictions, and organized concepts prior to the reading task. The web was student-constructed with the guidance of the teacher. They suggested that this strategy was a demonstrative way to develop content comprehension.

Heimlich and Pittelman (1986) have been credited with refining the strategy as a result of ten classroom studies that included elementary and middle school classes in history, language arts, music and science. Their report suggested that semantic mapping could be used to access content information, share prior knowledge, learn new vocabulary and organize and structure content material. They stated that by modifying the semantic mapping strategy the instructor could adapt it to a vocabulary building activity. These could then be used to introduce new vocabulary words prior to content reading, share prior knowledge, check other sources of information, organize new information and vocabulary in graphic form, and recall

and use information from the map for oral discussion in the classroom (Heimlich & Pittelman, 1986).

Conclusion

Cognitive organization of prior knowledge is an important element in a student's learning process. This could be crucial when working with illiterate or next to illiterate students. Illiteracy has rapidly become the ugly stepchild of this country and pressure has been put on instructors to teach reading. However, one of the major factors concerning reading is how the student perceives the task. Research suggests that conceptual understanding dictates how to solve problems, but to understand a subject the learner must have a strong command of the language and be able to communicate with it. This provides a frame of reference for new material. Prior knowledge aids the student in identifying new knowledge which, in turn, motivates acquisition of new ideas. However, if the students do not know or understand the language of the content, they cannot participate in communicating with its content. This presents a language problem and not a reading problem (Herber, 1970).

It has been said that analysis, recognition and meaning are the three basic functions of vocabulary development. However, successful integration of

vocabulary into the learner's lexicon is dependent on the learner's ability to integrate simultaneously the skills and concepts of new words so they become natural in verbal communication. Herber suggested that pre-reading discussion produces reinforcement of word manipulations and comprehension of content is greatly improved. This anchors new knowledge and makes learning permanent. In addition, the students' background knowledge can be the precursor of motivation. Finally, keywords, which carry meaning, create an anticipation of important ideas and develop a purpose for reading (Herber, 1970).

This literature review presented five vocabulary learning strategies: advanced organizer, graphic organizer, structured overview, mnemonic keyword strategy and semantic mapping strategies. While each of these strategies have a unique characteristic in their design, they are frequently inter-changeable because their primary function is the same. It is suggested that the teacher determines which strategy is most appropriate and compatible with the students. All of these strategies appear to generate the analysis and synthesis of data and advance the student from limited information and critical skills to problem-solving generative skills and broader development of the subject material. They create thinking that is generative, constructive and organized, allowing

the student to switch from one pattern to another if necessary.

For the purposes of this study, it was decided to generate a combination of the graphic organizer, the mnemonic keyword, and the semantic mapping strategies when working with the adult ESL subjects. The reason for integrating three of the antecedent strategies is based in the theoretical and applied research subsections. It has been established that prior knowledge is an essential component of not only comprehension,but also the recall of individual words (Paivio, 1970; Pressley & Levin, 1982; & Delaney, 1982). It has also been shown that cognitive connections are essential for recall (Ausubel, 1962; Barron, 1969; Harste & Bartholomae, 1986). Finally, pictorial cues add an additional cognitive "cue" for recall (Jones & Hall, 1982; Pressley & Levin, 1985) of vocabulary--an element which may prove advantageous for the adult ESL population used in this study.

Chapter 3

METHOD

This study utilized populations of beginning and advanced adult ESL students in an urban Sacramento adult education school. The adult education program at this institution is unique. While the students are assessed and placed at appropriate grade levels and the curriculum is much the same as in other institutions, the attendance procedures are not. Students are not required to meet any entrance criteria and may add or drop classes throughout the semester. For this reason, there are many students with poor academic skills sharing classes with students who have graduated from college in various countries. The common denominator for entry is solely language acquisition. In addition, the program is basically free and classes are filled to capacity as a result of this policy.

The intent of this study was to investigate the effect of a mnemonic graphic organizer strategy on the vocabulary acquisition of beginning and advanced ESL students. The following discussion provides an overview of the subject population, presents the research design and describes the procedures utilized during the treatment period.

Subjects

The population used in this research came from students enrolled in two adult ESL classes (beginning and advanced) at a metropolitan adult school. The ethnic groups represented were from Japan, Laos, Vietnam, China, El Salvador, Mexico and Hong-Kong. Unfortunately, there were not enough students from any one country, or any two heterogeneous ethnic groups, to make any type of linguistically based (i.e., alphabetic versus ideographic first languages) comparison of vocabulary acquisition. Two classes were selected; ESL C (Beginning ESL students) and ESL E (advanced ESL students). Both classes were taught by the same instructor. All students had previously taken a standardized placement test given by the school's testing department at the beginning of the spring, 1988 semester (3 weeks prior). Level C ESL students had been evaluated by the school as being close to illiterate. Level E ESL students were a mixture of those who had passed a standardized assessment test qualifying them for entry in public high school, and those who were preparing to take the same exam at the end the semester.

The total population of the four classes fluctuated from 98 to 78 during the three treatment sessions. However, not all of those students attended all three

sessions. Records and scores were initially maintained only for all those students who had taken the pre-tests, were present for the treatment and were present for both post-tests. However, due to lack of consistency in attendance, the total of students dropped to 31. In an effort to have defensible results and knowing that all students had already been through a recent screening test for class placement, the assumption was that if an Analysis of Variance comparing pre-test scores of the control and experimental groups showed no significance, those students who missed the pre-test, but were in attendance for the treatment and post-tests, could be added to the experimental population. Scores of students who did not take the pre-test and did not receive the treatment of the mnemonic graphic organizer were deleted from the analysis. The analysis of variance indicated no significant differences between the pre-test scores for the control and experimental group of either level C (beginning) ESL students or level E (advanced) ESL students (See Table 1). It was then decided to include those seventeen students who had missed taking the vocabulary pre-test but were present for both the treatment and post-test sessions. This decision raised the total population to 48.

Table 1

Analysis of Variance on Pre-Test Scores
Analysis of Variance on Level C Pre-Test Scores

Source of Variation	SS	df	MS	F
Between Groups	9.8	1	9.8	2.08
Within Groups	71.1	15	4.74	

$p > .05$

Analysis of Variance on Level E Pre-Test Scores

Source of Variation	SS	df	MS	F
Between Groups	10.29	1	10.29	2.74
Within Groups	45.14	12	3.76	

$p > .05$

Design

A 2 (treatment) x 2 (ESL ability level) factorial design was used to investigate the main effects (treatment) and interaction effects (treatment x ESL ability) of the mnemonic graphic strategy on vocabulary recognition (as measured by isolated word lists) and identification (as measured by a modified Cloze passage). The means of post-test List scores and post-test Cloze scores for both class

levels (C and E) and both groups (experimental and control) were compared by utilizing a 2 x 2 Multivariate Analysis of Variance.

Procedure

Classes had been in session three weeks before the researcher's contact with the adult ESL classes. Prior to the experimental session, the researcher observed the classroom procedure for the three week period. The experimental treatment was conducted in three 45-minute sessions over a period of one week. Prior to the experimental sessions, there was an introductory session including a brief discussion of the project and signing of consent forms (see Appendix B).

Because the students had only recently enrolled in these classes, random selection of subjects was assumed. The students were randomly assigned to treatment. Due to the lack of isolated space, half of the students stayed in the front of the class with their regular teacher (control group) and received standard vocabulary instruction. The other half went to the rear of the classroom with the researcher (experimental group) and received the same instruction in the topic material but with the aid of a mnemonic graphic organizer strategy for vocabulary acquisition.

Textbooks used in both classes contained no expository passages and an appropriate course of study was generated by the classroom teacher from vocabulary lists. Prior to the experimental session, a vocabulary list of 65 words (the pre-test list) (Appendix C) was selected by the researcher and approved by the classroom teacher. All proper nouns and hyphenated words were deleted from the list. After the pre-test lists were administered, any word defined correctly by at least five students was also deleted from the list. A final list of fifteen words was used as a post-test list for vocabulary word recognition (Appendix D).

Standard Classroom Practice. Two weeks before the project began, the researcher met with the class instructor to evaluate and decide on materials to be used during the research period. Complete lesson plans for both groups were developed. The content materials were exactly alike, only the method of instruction was to be different. The standard operating procedure of the regular instructor was teacher-generated dictation exercises. This was true for both classes. Prior to dictation exercises, the instructor distributed activity worksheets which focused on isolated word lists and identification of parts of speech (nouns, verbs, adverbs) sequences of words and word analogies (See Appendices E

and F). Simple context clues and questions were included from which the students were required to write sentences. The subsequent discussion focused on the use of correct parts of speech (i.e., tense). Other activities included identification of correct usage of verb tenses with passive and active tenses heavily stressed. Students were randomly called upon to write their sentences on the chalkboard. The remaining students were asked to identify any mistakes. Afterward, the instructor directed an oral review of verb tense cognizance and construction of short sample sentences.

Experimental Treatment Procedure. From the edited vocabulary lists, a skeletal graphic organizer was created by the researcher (Appendix G) for the experimental group in each class. During the session, each student in the experimental group was given a smaller version of the organizer and asked to construct an elaboration, their own personalized graphic organizer, as the researcher probed the students' background knowledge and illustrated the procedure on a larger model (30" x 40") organizer (see Appendix H). The students, shown a three-step procedure, arranged lists of words until they had a diagram which depicted interrelationships and the contextual structure of the lesson. The first step was to select key words from

vocabulary presented in the students' workbook. Prompts elicited all post-test vocabulary. In step two, the students developed a mnemonic graphic organizer, modeled after the researcher's, which displayed interrelationships among the words. Finally, in step three, they were asked to derive a pictorial theme or sequence of events that would depict a story-line. Students practiced this strategy by constructing one mnemonic graphic organizer. They worked as a whole group and individually. This activity incorporated language development, multisensory experiences, visual memory aids, and semantic organization.

There was an interval of 48 hours between the experimental instruction and testing due to the classroom instructor's schedule of activities. Thus, two days after the instruction using the mnemonic graphic organizer, the class met for the third time together and post-test list and the post-test cloze instruments were administered to both experimental and control groups in each ESL class. A scoring protocol was developed for the evaluation instruments. A lenient system of scoring was used in the post-test lists (see Appendix D). The students could either use each word in a sentence, provide a synonym or antonym, or define the word. The identification post-test required the students to fill in

the blanks on a modified cloze test (see Appendix I). An alphabetical list of the vocabulary to be used was listed to the right of a story composed by the researcher. The experimenter corrected and scored all tests. Raw scores are provided in Appendix J.

Results

In the Spring of 1989, 48 adult ESL students served as subjects in an experimental study of the effects of a mnemonic graphic organizer strategy on vocabulary acquisition. Subjects were in advanced and beginning ESL classes. The main effects of the treatment were measured by two instruments.

The first instrument was a simple list of the lesson's vocabulary predetermined to be unknown by the subjects. The subjects in each class were expected to define the key vocabulary in writing from memory. The second measure of vocabulary acquisition was a modified cloze test utilizing the same vocabulary. This second measure was given to discriminate between ownership, recognition, and contextual identification of vocabulary in the lessons.

Two 2 x 2 (ESL class level by treatment) MANOVAs were conducted comparing post-test lists and post-test cloze scores. The Multivariate Analysis of Variance

showed no significant main or interaction effects of treatment by ability level at either Level C (beginning ESL) or Level E (advanced ESL) on both dependent variables (list and cloze) ($F = 2.75$, $df = 44$, $p > .05$ List) and ($F = 0$, $df = 44$, $p > .05$ Cloze). This indicated that the mnemonic graphic organizer had the same effect on vocabulary acquisition across both levels of ESL classes as did the standard (control) instructional procedures (see Tables 2 and 3).

Table 2

Multivariate Analysis of Variance on Post-Test List Scores

Source of Variation	*Sum of Squares*	*df*	*Mean Squares*	*F value*	*level of signif.*
Between Columns	*60.95*	*1*	*60.95*	*2.75*	*>.05*
Between Rows	*10.14*	*1*	*10.14*	*.457*	*>.05*
Columns by Rows	*9.79*	*1*	*9.79*	*.44*	*>.05*
Between Groups	*80.52*	*3*	*26.84*		
Within Groups	*975.46*	*44*	*22.17*		
Total	*1055.98*				

F value necessary for significance is 4.06 (df 1,44) for .05

Table 3

Multivariate Analysis of Variance on Post-Test Cloze Scores

Source of Variation	*Sum of Squares*	*df*	*Mean Squares*	*F value*	*level of signif.*
Between Columns	*0*	*1*	*0*	*0*	*>.05*
Between Rows	*59.1*	*1*	*59.1*	*3.56*	*>.05*
Columns by Rows	*43.1*	*1*	*43.1*	*2.6*	*>.05*
Between Groups	*102.2*	*3*	*34.1*		
Within Groups	*729*	*44*	*16.6*		
Total	*831.2*				

F value necessary for significance is 4.6 (df 1,44) for .05

A review of individual cell means, however, revealed first, cross-directional outcomes of treatment (see Tables 4 and 5) for the two ability groups on the Post-test Cloze were discerned. While the Level C control vs. experimental mean scores were 8.50 vs. 10.5, the Level E

control vs. experimental mean scores were 12.5 vs. 10.8; these differences could lead to a Type II error.

Table 4

Cell Data Comparing Post-Test List Scores

	Control (n=25)	Experimental (n=23)	
	n = 12	n = 13	
Level	$\Sigma X = 98$	$X = 129$	$\Sigma X = 227$
C	$\bar{X} = 8.17$	$\bar{X} = 9.92$	$\bar{X} = 9.08$
	n = 13	n = 10	
Level	$\Sigma X = 113$	$\Sigma X = 117$	$\Sigma X = 230$
E	$\bar{X} = 8.69$	$\bar{X} = 11.7$	$\bar{X} = 10$
	$\Sigma X = 211$	$\Sigma X = 246$	
	$\bar{X} = 8.44$	$\bar{X} = 10.69$	

Table 5

Cell Data Comparing Post-Test Cloze Scores

	Control (n=25)	Experimental (n=23)	
	n = 12	n = 13	
Level	ΣX = 102	ΣX = 137	X = 239
C	$\bar{X}$ = 8.50	$\bar{X}$ = 10.5	X = 9.6
	n = 13	n = 10	
Level	ΣX = 163	ΣX = 108	X = 271
E	$\bar{X}$ = 12.5	$\bar{X}$ = 10.8	X = 11.8
	ΣX = 265	ΣX = 245	
	$\bar{X}$ = 10.6	$\bar{X}$ = 10.7	

Second, a much greater difference between List and Cloze mean scores was noted for the advanced students in the control situation (List X = 8.69 vs. Cloze X = 12.5) than between those of the advanced ESL treatment group (List X = 11.17 vs. Cloze X = 10.8). These findings required a reference to individual student's raw scores.

The review of raw scores revealed that three subjects in the advanced ESL control group chose not to respond to the first (List) pre-test measure. These same subjects responded successfully to the Cloze post-test resulting in the significant, but spurious, difference between these two post-treatment measures (See Appendix H for the control group).

This unexpected direction of post-test cloze mean scores offset possible significant differences in mean post-test cloze scores between the performance of the control and experimental group in the beginning ESL class. Said differences, shown in Tables 4 and 5, led to a series of t-tests which are presented in Table 6.

There were other outcomes between the Level E group scores which contrasted with expectation. The Level E experimental group had a higher $\overline{X}$ score of 11.7 on the post-test List measure as compared to their post-test Cloze score of $\overline{X}$ = 10.8 (not statistically significant) (See Table 6). This result ran counter to expected outcomes; one would expect a higher score on the measure which provided a greater degree of contextual information. Another interesting comparison was the comparison of Level E control group's post-test Cloze mean of 12.38 versus the Level E experimental group's mean of 10.8. It had been anticipated that the

experimental group would have out performed the control as a result of the special treatment. These anomalous results are discussed in Chapter 4.

Table 6

T-tests on Pre-test and Post-test
List Scores and Cloze Scores

Level and Group	Pre-Test X	Post-List X	Post-Cloze X	df	t	p
C, Exp.	(n=9) 3.22	(n=13) 10.0		8	-5.55	.001
C, Con.	(n=8) 4.75	(n=12) 7.25		7	-1.64	>.05
C, Exp.	(n=13) 9.92		11.23	12	-2.48	<.05
C, Con.	(n=12) 8.17		8.5	11	-0.84	>.05
E, Exp.	(n=7) 7.43	(n=7) 13.86		6	9.38	<.0001
E, Con.	(n=7) 5.71	(n=7) 11.14		6	-4.48	.004
E, Exp.	(n=12) 11.70		10.8	9	1.17	>.05
E, Con.	(n=10) 8.69		12.38	12	2.71	<.05

T-test Analysis

A series of t-tests were conducted in order to examine differences between cell means (see Table 6). Among Level C (beginning ESL) students there was a significant difference between the pre-test and post-test List scores in the experimental group (t = 5.55, df = 8,

$p < .05$), indicating that the mnemonic graphic organizer had a significant effect beyond chance ($p < .05$) on the recall of learned vocabulary. A t-test of pre-test and post-test mean (list) scores in the Level C control group, however, showed no sigificant effect of standard classroom practice on acquisition of vocabulary.

Among Level E (Advanced ESL) students there was a significant difference between the pre-test and post-test List scores in the experimental group ($t = 9.38$, $df = 6$, $p < .05$). Examining the scores in the control group, Level E, significant differences were also found between pre-test and post-test List scores ($t = 4.48$, $df = 6$, $p < .004$). These levels of significance indicate that both the mnemonic graphic organizer and standard classroom practice are effective practices for vocabulary acquisition among advanced ESL adult students.

A comparison of the post-test List and the post-test Cloze cell means revealed significant differences in the beginning and advanced ESL classes. However, one sample was an experimental group (Level C) and the other was a control group (Level E). The purpose of the Cloze Test was to measure the degree to which students identified the vocabulary words presented in context. Among the Level C (beginning ESL) experimental group there was a significant difference between post-test List to post-

test Cloze ($t = 2.48$, $df = 12$, $p = < .05$). These scores confirm theoretically expected post-test outcomes; students will score higher on word identification tasks than on word recognition tasks. This was not true with the Level E (advanced ESL) experimental students ($t = 1.17$, $df = 9$, $p < .05$) however. As was stated earlier, the significance of the difference between List and Cloze control group mean scores was attributed to the "0" List score of three control group numbers.

Chapter 4

SUMMARY AND DISCUSSION

This study investigated the effects of utilizing a mnemonic graphic organizer during ESL instruction on the recognition and identification of key vocabulary. The research questions addressed in this study were: 1) Will the mnemonic graphic organizer strategy have an effect on the recognition of vocabulary on a recall (listing) test? 2) Will the mnemonic graphic organizer strategy have a positive effect on the identification of vocabulary using a test following a modified Cloze format? and 3) Will the mnemonic graphic organizer strategy enhance vocabulary understanding for both beginning and advanced ESL students? The hypotheses drawn from these questions were tested in the present study through visual presentation of a model mnemonic graphic organizer (See Appendix G), and verbal interaction among students and the researcher concerning the vocabulary on the mnemonic graphic organizer using individual photocopies of the instructor's larger mnemonic graphic organizer (Appendix F).

An intensive review of literature did not reveal experimental research involving adult ESL students in a public education program which concentrated on vocabulary acquisition using a graphic organizer or structured

overview method. These strategies entail the schema development skills of brainstorming for synonyms and family-related words of key word vocabulary, from which a story in a pictorial scene could be created. In the present research this was necessary since there was no story in the individual lessons, only lists of words and abbreviations.

It has been shown in this study that the use of the graphic organizer for vocabulary instruction across ability groups was as facilitative to vocabulary acquisition as regular classroom methodology (classroom technique). Further, the separate t-test analyses revealed significant effects of the experimental treatment on beginning ESL students. Most noteworthy from this analysis was the lack of significance of the use of regular classroom methodology with beginning ESL students.

While there were no significant main or interaction effects of treatment by ability level at either level C or E on both List and Cloze, the results indicated that the mnemonic graphic organizer had the same effect as did the standard (control) instructional procedures. Statistically this may not appear to be significant, but that such a short-term treatment showed some small gains is important, and the mnemonic graphic organizer proved to be as good as the standard instructional procedures giving

credence for further study utilizing this procedure with adult ESL populations. This leads the researcher to believe that, under adjusted circumstances and longer duration of the study, this strategy could prove superior to the standard instructional procedures.

Contrary to the researcher's expectations, the advanced students (Level E) in the experimental group did not respond as well to the Cloze measure as they did the List test. The stronger isolation versus context scores among the advanced ESL experimental population challenged current learning theory--identification comes before recognition (Smith, 1973). It is only after repeated encounters that the mind owns the information and recognizes the subject with very little contextual information (Gunston-Parks, 1989). These advanced ESL students were able to report the definition of words in isolation and yet not fill in the Cloze blanks correctly. However, it is possible that the Level E advanced students were scholastically goal-oriented, responding more positively to the pre- and post-test List as the format was more familiar to them. When the Cloze test was presented, words were not in the familiar testing format, being presented as blanks within a paragraph of text. These students had worked hard and appeared accustomed to standard testing procedures; therefore, they could have

had a certain degree of difficulty in adjusting to the Cloze format. Researchers agree that Bartlett's theory of schema suggests that attitude is the element responsible for developing a relationship between perception and memory structure. This could be a possible reason why the advanced Level E students were unable to adjust to the new procedure.

It is also possible that the advanced students, contrary to previous statements, did not respond well to differences in the classroom strategy as well as the lower Level C students did simply because of the additional years of formal education.

Pursuing the possibility of prior educational experience affecting student responses, it is possible that the experimental group, Level C, was more susceptible to the new material because their curiosity was still high. Or perhaps the interactive languaging of the treatment had a greater impact. The fact that treatment was more effective for the beginning than advanced students calls to question McLaughlin's (1978) suggestion that the rules and habits of the first language could interfere and confuse the acquisition of the second language. We could, however, imply in this case, that these adult students had a strong cognitive maturity. If so, this would concur with Ervin-Tripp's (1974) research

which suggested that students' qualitative differences result from greater cognitive maturity of the second language.

Discussion of Inconsistent Results

Inspection of individual treatment by ability cell means revealed a cross-directional effect of treatment (Chapter Three, Tables 4 and 5). The lack of expected direction of mean scores and the contrast of mean scores between control and treatment group among high and low students indicated that there could have been a positive interaction effect if the Level E Control group had not scored in such an unexpected manner. A perusal of the raw scores revealed that three advanced students in control situations chose not to respond to the first post-test List measure. However, these same students responded positively and successfully to the post-test Cloze, resulting in the significant but spurious difference. This also offset other apparent differences in mean scores between the control and experimental beginning ESL classes (Level C). It is likely that there could have been an interaction of treatment and ability, but it was not revealed because of the unexpected human element--the three students who chose not to participate in the post-test List measure. We can only speculate why: anxiety,

boredom with vocabulary List tests, cultural differences, etc.

While there were no significant main or interaction effects of treatment by ability level at either Level C or Level E on both List and Cloze MANOVA measures, the results did indicate that the mnemonic graphic organizer had the same effect as did the standard (control) instructional procedures. This may not appear to be pragmatically consequential, but the fact that such a short-term measurement showed significant gains is important.

The Level C beginning ESL class demonstrated significant vocabulary gains using the mnemonic graphic organizer when compared to the standard procedures of the control group. Their scores on both post-test measures revealed not only greater vocabulary acquisition, but also strong support for their increased ability to identify vocabulary when it is presented in context. This post-test comparison supports the use of a modified Cloze format as a measurement of vocabulary comprehension. These results countered some claims in the literature that age or cultural differences of prior knowledge would impede the ability to learn a new strategy (McLaughlin, 1978). It also gave credence to the fact that the mnemonic graphic organizer strategy enhanced the

constructive process of meaning and assisted the students in speedy and efficient recall of new vocabulary. It was encouraging to this researcher that this study concurred with Stauffer's (1969) report that new words, illustrated in pictures, aid students in recalling past experiences that provoke reading and thinking activities. Also gratifying was the relationship this project had with Yuille and Paivio's (1967) paired-associate theory on imagery and verbal mediation, and Yuille's (1968) study on relationships between imagery awareness and concreteness of vocabulary as a function necessary for verbal mediation.

Discussion of Informal Observations

The researcher noted that, during the testing, students appeared to be more interested in finishing first. The researcher observed that, after about ten or fifteen minutes, there was a tense shuffle among the students. As one student would complete the test and hand it in, the others would look up and begin to work faster. Also interesting was the strong attachment students had to their dictionaries. All students had been instructed not to use a dictionary, but as the testing progressed it became necessary to have them put their dictionaries under their desks because they insisted on using them to find

the meaning of a word. Interesting, too, was the incidence of spontaneous helping behavior in both classes. Students were reminded several times not to talk during the test. Again, these behaviors may have been attributed to cultural differences in learning strategies.

Recommendations for Further Research

Longer Duration

When one considers the research reviewed for this study, it is suggested that a new learning procedure cannot be adopted effectively by subjects over a 24-hour period. Barnes and Clawson (1975) suggested this type of procedure should last more than ten days. Even though reading is a similar process across language (Goodman & Goodman, 1978), nonnative speakers do not share the same characteristics or background knowledge. As a result, conceptual and linguistic knowledge of text may not have the same meaningful representation for all students. Based on this research, and personal experience during this research project, it is suggested that an extended program of regular study be considered.

The researcher suggests:

Separate classrooms: It is strongly suggested that control and experimental groups meet in separate classrooms. This would afford both instructors and

students full concentration and complete freedom to verbally communicate at any volume and level of intensity. It would provide chalkboard space for students to practice simultaneously with the instructor.

Same teacher for each level: It was this researcher's belief that the same teacher for Level C and Level E was important in that there would be no deviation of teaching style or terminology. Also, it would balance the impact of the Hawthorne effect.

Close communication with research institution, administrators and instructor: The pressure to maximize time on task is quite heavy in most schools. Any deviation from standard operating procedures can have an effect on the instructor's willingness to participate in research. If all levels of administration are well informed, few discrepancies and misunderstandings will be encountered. This, of course, includes the staff and supplies personnel. It was observed in this study that a great curiosity arose among the regular teacher's colleagues. In order to avoid competitive situations, it is suggested that the researcher meet with all teachers who work with these particular students and the administrators of the institution to discuss what the project will be attempting to achieve and how the

procedure must be presented. Also, discuss how the teacher/teachers were selected.

Time of presentation: It has been this researcher's experience that ESL students and students native to this area are more regular in attendance in the Fall semester. Also, the morning sessions appear to have consistently better attendance. Perhaps it is because so many of the students must supplement their income with after-school jobs. Also, students are more likely to secure summer employment if they have been working in the Spring. It is common for attendance at adult education schools to drop in the Spring semester.

Student mnemonic graphic organizers: It is strongly recommended that the students have the opportunity to construct their own organizers. It enhances each student creativity and stimulates a wider variety of word usage. It is important to remember that teachers, too, can learn much from their students.

Conclusions

This study lends further support to the applicability of the modified Cloze technique to the problem of ESL proficiency testing. Also, the use of the mnemonic graphic organizer for vocabulary instruction across ability groups was as facilitative to vocabulary

acquisition as regular methodology (classroom technique). The strategy was found to be particularly efficacious to beginning ESL students where standard practice was not. Given further experimentation, refinement of method, time, and place of experiment, the mnemonic graphic organizer as a strategy could play an extremely useful role in the acquisition and comprehension of vocabulary when presented in isolation as well as in context by adult ESL learners.

APPENDICES

Appendix A

Steps in Constructing and Using Graphic Organizers

Appendix A

Steps in Constructing and Using Graphic Organizers

1. Analyze the vocabulary of the learning task and list all the words that you feel are important for the students to understand.

2. Arrange the list of words until you have a schema which depicts the interrelationships among the concept particular to the learning task.

3. Add to the schema vocabulary terms which you believe are understood by the students in order to depict relationships between the learning task and the discipline as a whole.

4. Evaluate the organizer. Have you clearly depicted major relationships? Can the overview be simplified and still effectively communicate the ideas you consider to be crucial?

5. Introduce the students to the learning task by displaying the schema and informing them why you arranged the terms as you did. Encourage them to constitute as much information as possible and to add additional synonyms or homonyms and expand the schema.

6. During the course of the learning task, relate new information to the organizer as it seems appropriate.

Appendix B

Student Consent Form

Appendix B

Student Consent Form

I am Mrs. Kaelin and I will be helping Mrs. Kerns for the next week. We will be testing a new way to study vocabulary. In order to do this, I will need your permission. Your name will not be used. Only the work you do in class will be studied. If you wish to be a part of this study, please sign the following statement:

- -

I want to participate in the vocabulary study with Mrs. Kerns and Mrs. Kaelin.

_____

Student Signature

_____

Date

Appendix C

Pre-test List
Post-test List
Post-test Cloze
Regular Class Activity Sheet-Level C

Appendix C

ESL C in Plain English

Name_____ PRE TEST LIST

1. application_____
2. available_____
3. benefits_____
4. busboy_____
5. conversation_____
6. crazy_____
7. difficult_____
8. dishwasher_____
9. ditchdigger_____
10. dream_____
11. expensive_____
12. experience_____
13. farm_____
14. government_____
15. graduate_____
16. housekeeper_____
17. hotel_____
18. janitor_____
19. maid_____
20. necessary_____
21. partner_____

Appendix C
(Continued)

22. position_____
23. previous_____
24. pronunciation_____
25. residence_____
26. sentences_____
27. sheets_____
28. vacuum_____
29. wages_____

Appendix C
(Continued)

Post-Test List Name_____

In Plain English

	Same	Opposite
1. housekeeper		
2. position		
3. graduated		
4. sheets		
5. expensive		
6. residence		
7. experience		
8. difficult		
9. vacuum		
10. sentences		
11. previous		
12. conversation		

Appendix C
(Continued)

	Same	Opposite
13. partner		
14. pronunciation		
15. hotel		

Appendix C
(Continued)

Post-Test Cloze Name_____

In Plain English ESL C

Fannie's New Job

Fannie just moved to Sacramento from China where she is now a _____, but she works without a _____. She went to school in China and _____, but had no working _____ because she and her sister had a silk farm. Fannie has trouble with her _____ because of her poor English skills.	conversation experience graduated housekeeper partner
Her biggest problem is _____. Another problem is forming _____. This is very _____ for her. Fannie has moved into the Fairmont Plaza _____, and it is now her new _____.	difficult hotel pronunciation residence sentences

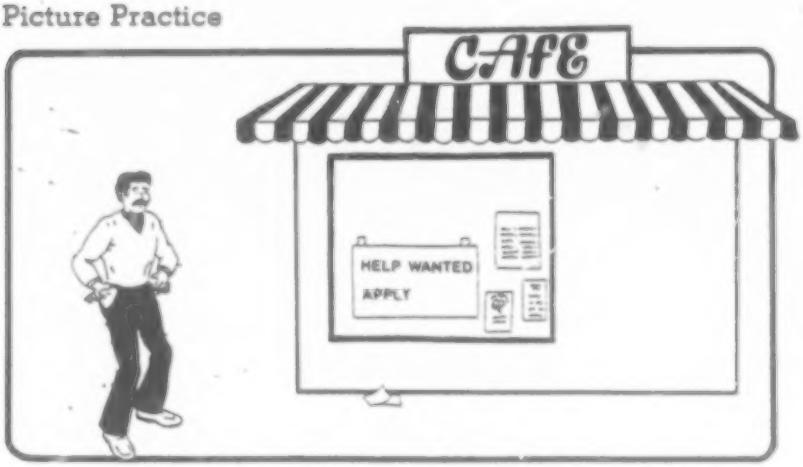
Appendix C
(Continued)

She was offered a _____ at the hotel.	expensive
Fannie has to clean _____ apartments.	previous
This includes changing bed _____ and	position
using a new _____ cleaner, but Fannie	sheets
has had no _____ experience with this	vacuum
machine and hopes it will not be too difficult	
to learn how to use it.	

APPENDIX C

LESSON 28: He'll Get A Job Next Week.

Picture Practice



Listening: Put an X on the correct answer.

1.	True	False	4.	True	False	7.	True	False
2.	True	False	5.	True	False	8.	True	False
3.	True	False	6.	True	False	9.	True	False

Pronunciation: Who is . . . ?

Vic	Phyllis
unemployed	busy
broke	rich
young	old
unhappy	happy

Skill Building: Ask your partner these questions.

1. Do you have a job? Are you looking for one? What kind?
2. Did you have a job in your country? What?
3. How can you find a job in the United States? Is it easy?
4. Tell me about a job you would like.

Grammar Gloss

APPENDIX C

Long comparative adjectives

This job	is	more interesting than more difficult than	that one.
These jobs	are	more interesting than more difficult than	those.

Vocabulary

Names

I. Male
- Bud
- Frank
- Fred
- Paul
- Pete
- Rusty
- Vic

II. Female
- Frannie
- Freida
- Judy
- Phyllis
- Ruth

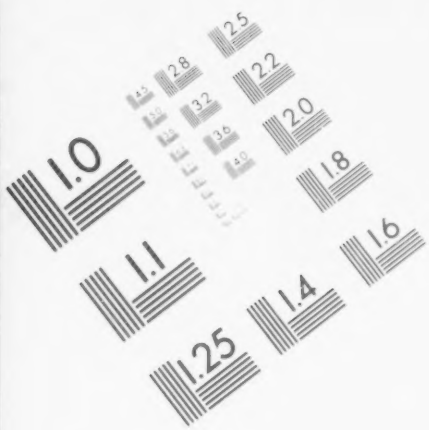
III. Places
- Canada
- The United States

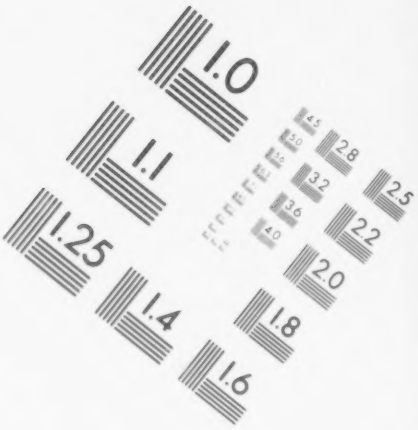
Other Words

apply
boss
citizen
employed
expensive
experience
gardener
graduate
housekeeper
housework
inquire
interesting
interview
manager
outside
paycheck
shift
sign
towels
unemployed
vacuum

Expressions

apply within
change the sheets
full-time
kitchen helper
minimum wage
part-time
permanent resident's visa





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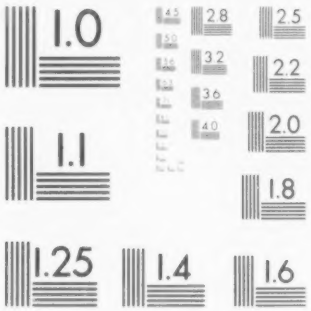

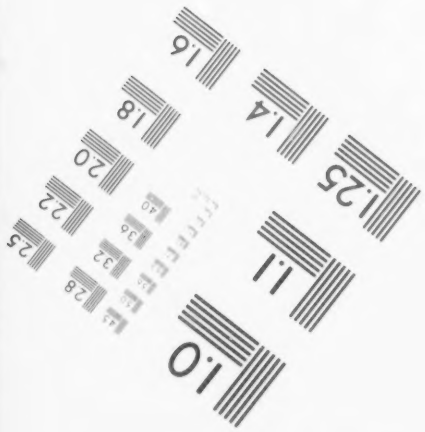

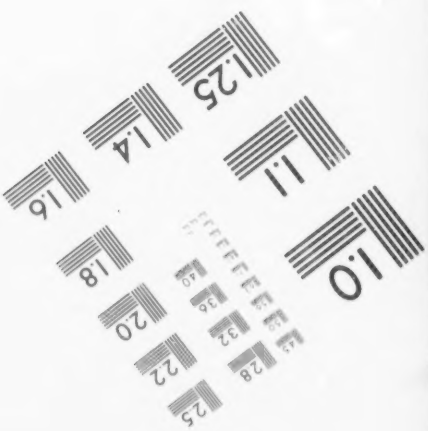

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Appendix D

Pre-Test List,
Post-Test List,
Post-Test Cloze, and
Regular Class Activity Sheet Level E

Appendix D

Pre-Test List
ESL E Real Life Reading

Name:_____ Page 1 of 4

1. abbreviation_____
2. agent_____
3. attorney_____
4. bank_____
5. carpet_____
6. convenient_____
7. dictionary_____
8. deposit_____
9. expensive_____
10. fee_____
11. government_____
12. included_____
13. kitchen_____
14. landlord_____
15. lease_____

Appendix D
(Continued)

Pre-Test List
ESL E Real Life Reading

16. newspaper_____
17. lease_____
18. principal_____
19. raise_____
20. refrigerator_____
21. studio_____
22. unfurnished_____
23. utilities_____
24. stove_____
25. grease_____
26. alphabetical_____
27. boss_____
28. current_____
29. employed_____
30. expensive_____
31. distance_____
32. gardener_____

Appendix D
(Continued)

Pre-Test List
ESL E Real Life Reading

33. graduate _____
34. housework _____
35. index _____
36. inquire _____
37. interview _____
38. manager _____
39. outside _____
40. physician _____
41. paycheck _____
42. shift _____
43. telephone _____
44. towels _____
45. unemployed _____
46. fraction _____
47. frosting _____
48. gift _____
49. grease _____

Appendix D
(Continued)

Pre-Test List
ESL E Real Life Reading

50. saucepan_____
51. heavy_____
52. fabric_____
53. dial_____
54. label_____
55. current_____
56. picnic_____
57. pharmacy_____
58. talkative_____
59. terrific_____
60. typing_____
61. escape_____
62. directory_____
63. community_____
64. emergency_____
65. prescription_____

Appendix d
(Continued)

Name_____

Real Life Reading ESL E
Post-Test List

PLEASE WRITE THE MEANING OF EACH WORK, OR A WORD THAT MEANS THE SAME OR OPPOSITE.

		Same	Opposite
1.	dictionary		
2.	alphabetical		
3.	physician		
4.	attorney		
5.	pharmacy		
6.	telephone		
7.	abbreviation		
8.	typing		
9.	principal		
10.	current		
11.	index		
12.	dial		
13.	community		
14.	distance		
15.	government		

Appendix D
(Continued)

Name_____

Real Life Reading ESL E
"Jobs in the Community"

Juan is a student at Fremont School for Adults. He went to the _____ for correct spelling of _____ instead of using the word "doctor" in his letter. The _____ listing of words helped him while _____. The dictionary also helped Juan find the _____ "MD and "ATTY."	abbreviation alphabetical dictionary physician typing
Juan also needed the name and address of an _____ to represent him in his lawsuit against the federal _____. He decided to call his brother, Salvador and _____ "I" for long _____. Salvador works in the _____ building at the Woodland Clinic.	attorney dialed distance government principal

Appendix D
(Continued)

Name_____

Real Life Reading ESL E
"Jobs in the Community"

Salvador is a druggist in the clinic's _____ so the _____ call was short. Because of Salvador's work he keeps an _____ list of professionals in the community. Juan wrote three names in his _____, thanked his brother, and finished typing his letter.	community current index pharmacy telephone

Appendix E

Using Reference Material

APPENDIX

4

Using Reference Material

What does the word *flinch* mean? . . . Where can I find someone to clean my rug? . . . Is there a train to Winston in the afternoon? What kind of book will tell me how to fix a bike?

Do you know how useful the dictionary or the Yellow Pages can be? Can you read a timetable correctly, or do you run for a bus that has already left? Knowing how to use reference books, to read maps, timetables, building directories, and many other kinds of lists will save you time, energy, and often money. The exercises in this section will give you practice in using many different kinds of reference materials.

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Which Floor, Please? 62
Number, Please! 64
Using the Yellow Pages 66
Which Chapter? Which Page? 69
Can You Find It in the Index? 70
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Graphs...Up, Down, Across, Around 74
Which Road? What Direction? How Far? 78
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- Vocabulary Review
- Comprehension Review

APPENDIX

Using the Dictionary

A **dictionary** gives you the *meanings* of words. It also gives you the *pronunciation*, the *spelling*, and the *part of speech* of a word. It is important to understand that one word can have more than one meaning. It is also important to know that you can figure out the meaning of a word by the way it is used in a sentence.

The words in a dictionary are listed in *alphabetical order*. There are two **guide words** at the top of each dictionary page. The guide word at the *left* is the *first word* on that page. The *guide word* at the *right* is the *last word* on that page. All the other words on the page come in *alphabetical order between* the two guide words.

Two guide words on a page are **graves** and **great**. The words *gravy*, *graze*, and *grease* will also be on that page. This lesson will give you practice in using a dictionary.

A. On the lines below these words, write the words in alphabetical order. Some words **start** with the **same letter**. You will have to look at the **second** or **third** letters in these words. Cross out each word below after you write it on the line.

harvest mother distance pitch escape patch
disturb pity worry last morning least

1. _____ 4. _____ 7. _____ 10. _____

2. _____ 5. _____ 8. _____ 11. _____

3. _____ 6. _____ 9. _____ 12. _____

B. Look below at the **guide words** from two pages in a dictionary. Then look at the **Words to List.** If you find a word that will be on the same page as the guide words, write it under the guide words. You may not be able to list all the words under the guide words.

GUIDE WORDS

pound **practical**

_____ _____

_____ _____

_____ _____

WORDS TO LIST

poison	poultry	pony	potential	policy	pray
reposition	police	represent	preach	power	
pour	pout	poverty	powder	pox	

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Appendix

B. There is often a **Special Directory** in the front of your telephone book. This gives you telephone numbers for police, fire stations, hospitals, telephone repair, and other special services. You may need to use these numbers in case of an accident or emergency. This exercise will give you practice in using a Special Directory.

• Read the **Words to Know** carefully. Then use the **Special Directory** printed on this page to answer the questions below. You can look back at the **Words to Know** and the Directory as you work.

WORDS TO KNOW

area code — special number to dial when you make a long distance call
emergency — a sudden accident or event needing immediate attention
hols. — abbreviation for *holidays*
person-to-person — a long-distance call made to a particular person
poison — something harmful to life, health, or body
rescue — save from danger or harm
squad — group usually trained for a special job
station-to-station — a long-distance call made to a number, not to a particular person at that number
wkdays — abbreviation for *weekdays*; Monday through Friday

EMERGENCY NUMBERS

Police		**Utilities**	
F.B.I.	KL5-1001	Ross County Gas Co.	
Foxcroft Police	KL5-3600	8 a.m.–6 p.m.	KL5-3030
Ross County Radio Patrol	555-3006	nights, Sun., hols.	KL5-3100
Fire		**Telephone**	
Foxcroft Fire Dept.	555-7100	Business Office (wkdays)	KL5-1324
Ross County Fire Co.	555-1212	Emergency Repairs	KL5-3000
Emergency Services		**LONG DISTANCE DIALING**	
Central Medical Center	KL5-7070	**Out-of-town calls:** for calls within your area code, dial 1 + 7 digits (1 + 555 + 1234); for calls outside your area code, dial 1 + area code + 7 digits.	
Foxcroft Hospital	555-9000		
Foxcroft Rescue Squad	555-4300		
Poison Control	555-5000		

Out-of-town rates: person-to-person, page 6; station-to-station, page 7

B. Questions (On the line, write the letter for the answer you choose.)

1. You see smoke coming out of your neighbor's house in Foxcroft. What number will you call? ____
   a. 555-1212 b. 555-1700 c. 555-7100

2. You live in Foxcroft. What number will you call to report that your house was broken into? ____
   a. KL5-3000 b. KL5-3600 c. 555-3006

3. You smell gas escaping in your cellar about 8:30 p.m. You should report this by calling: ____
   a. 555-7100 b. KL5-3030 c. KL5-3100

4. On a picnic, a friend has eaten some berries. They may be harmful. Who is best to call to find out? ____
   a. your neighbor
   b. Poison Control
   c. Foxcroft Police

5. You want to call a friend in Enid. The area code is 405, and the number is 555-3105. Your area code is 415. You should dial: ____
   a. 1 + 405 + 555-3105
   b. 1 + 7 + 415 + 555-3105
   c. 1 + 405 + 1234

6. What number will you call to report an error in your telephone bill and when? ____
   a. KL5-3000 b. KL5-1324, Mon.-Fri.
   c. KL5-1324 any time

7. You want to call long-distance and speak only to M.T. Cone. Where will you find information about how much the call will cost? _____

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APPENDIX

Which Floor, Please?

When you have to deliver a package to someone in a large office building, do you know how to find the right floor? Do you get to the right door for the doctor's office, or do you go to the dentist's office by mistake? Maybe you forget to look at the **Building Directory** on the wall of the lobby in the building.

A **Building Directory** is like an **index** to an office building. It lists the people and companies in a building in alphabetical order, with the office number for each one. The first number or the first two numbers given for the office usually indicate what floor that office is on. For example, an office with the number 406 means the office is on the 4th floor in Room 406.

This exercise will give you practice in using a Building Directory and in being able to find a person's office quickly.

- Read the **Words to Know** and **Abbreviations** carefully. Then use the **Building Directory** to answer the questions on page 63.

WORDS TO KNOW

attorney — lawyer
community — having to do with people living in a certain place
dental — having to do with teeth, dentists
pharmacy — drugstore where presciptions can be filled
podiatrist — foot doctor
prescription — order for drugs or medicine written by a doctor

ABBREVIATIONS

atty — attorney, lawyer
C.P.A. — Certified Public Accountant; person who deals with bank statements, tax forms, etc.
D.D.S. — dentist (Doctor of Dental Surgery)
lab — laboratory
M.D. — doctor, physician (Doctor of Medicine)

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Appendix

C. Abbreviations, or short forms of words, are often listed in the back of a dictionary. They are in alphabetical order with their meanings. Use a dictionary to find what the following abbreviations stand for. Write this next to the abbreviation.

amp _____ cwt _____

amt _____ mpg _____

CPA _____ tbsp _____

COD _____ wpm _____

D. Different kinds of work are listed below. Next to each one, write one of the abbreviations (from above) that you might use in this work.

1. working in a shipping room _____
2. fixing a TV set _____
3. filling out an income tax form _____
4. working on a car engine _____
5. cooking _____
6. taking a typing test _____

E. Read each sentence below. Think about the meaning of the underlined word. Write the letter for the word or phrase under the sentence that gives the best meaning for the underlined word.

1. A new wave of students will enter the freshman class. ____
   a. moving hand b. moving water c. group
2. Their names are alphabetized on the roll in the office. ____
   a. official list b. turn over in a circle c. small piece of bread
3. The classes take place in the principal building on the campus. ____
   a. head of a school b. important rule c. most important
4. Some students work for an arm of the government studying crime. ____
   a. part of the body b. section or branch c. weapon for war
5. There is a current need for more protection in the city. ____
   a. recent, present time b. flowing water c. electric power

• Now check in the dictionary for the different meanings of the underlined words. Circle the number of each sentence in which you chose the right meaning for the word. Correct any that were wrong.

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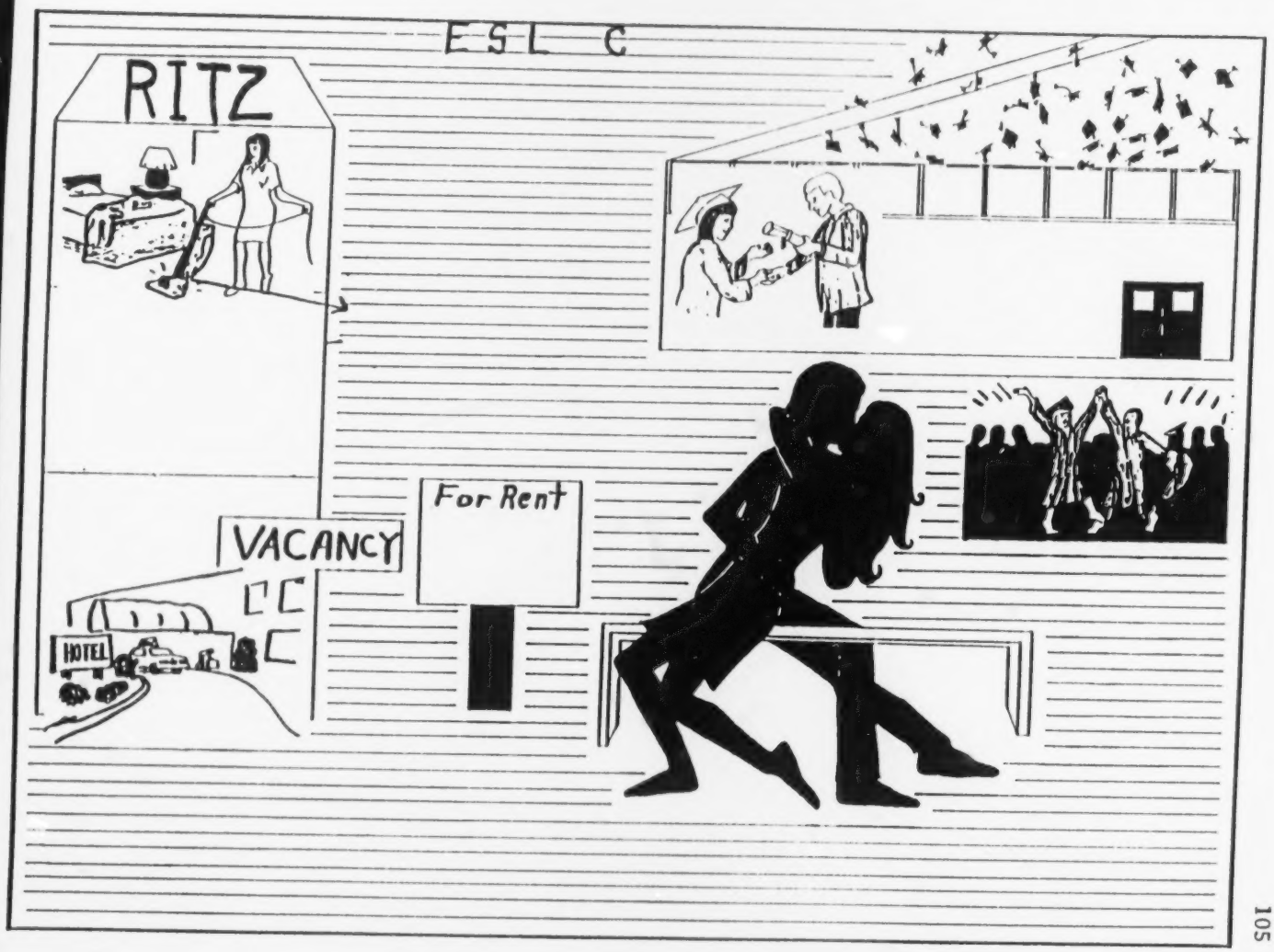
Appendix F

Researcher's Graphic Orgaizer



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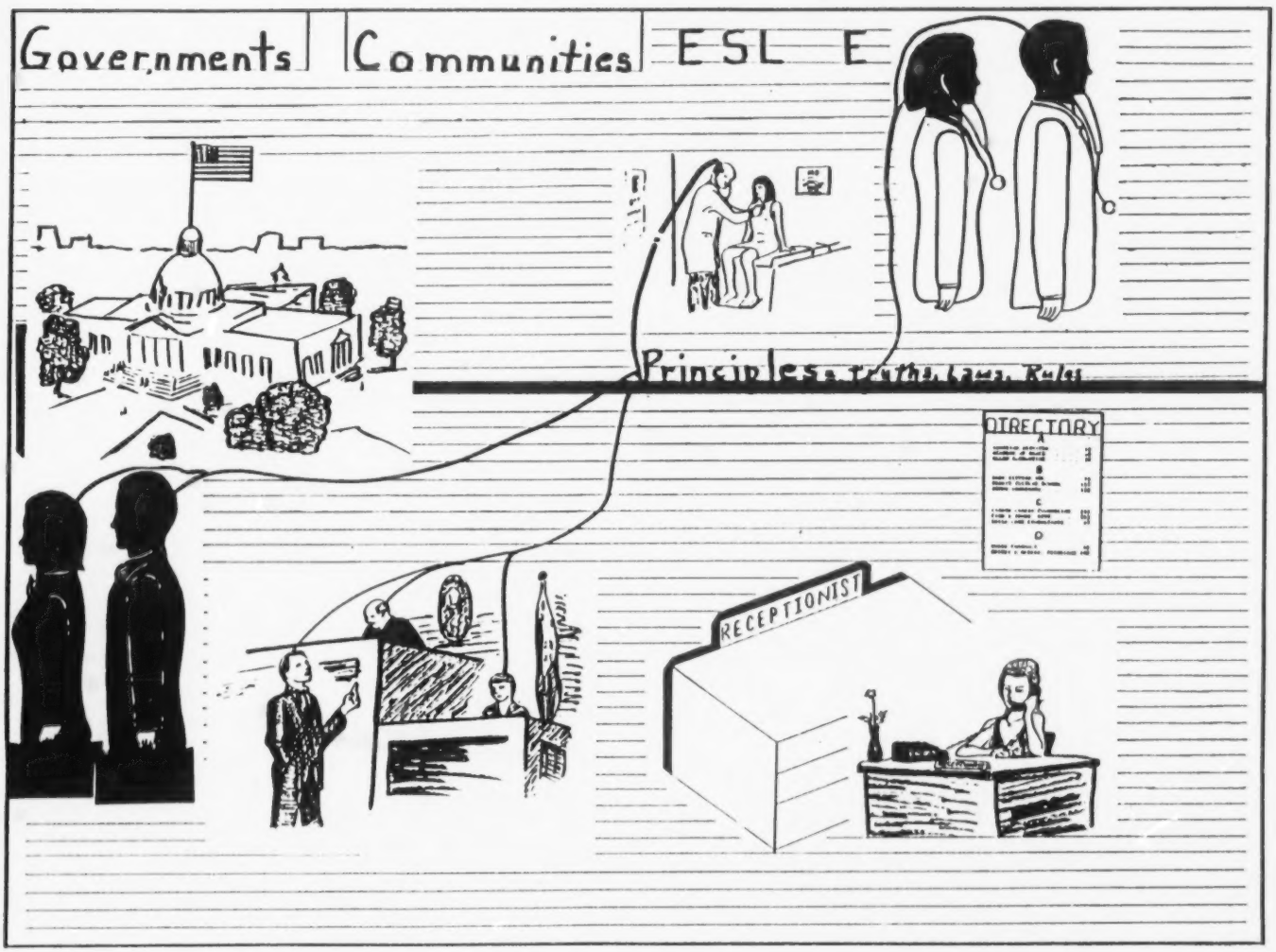

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Appendix G

Raw Scores, Level C and Level E

Appendix F

Raw Scores of Students
Level C

Control Group

Subject #	Country	Pre-Test	Post-Test	Cloze
1.	Mexico	4	14	15
2.	Laos	4	9	9
3.	Laos	3	9	7
4.	Japan	6	8	7
5.	Mexico	9	7	6
6.	China	7	4	6
7.	El Salvador	3	4	5
8.	China	2	3	2
9.	Mexico	0	11	13
10.	Laos	0	6	18
11.	Laos	0	14	15
12.	Laos	0	9	9
		X = 4.75	X = 8.17	X = 8.50

Experimental Group

Subject #	Country	Pre-Test	Post-Test	Cloze
13.	Mexico	5	15	15
14.	Laos	1	15	15
15.	Mexico	6	14	12
16.	Mexico	6	12	11
17.	Laos	1	9	10
18.	Hong Kong	3	8	10
19.	China	3	7	8
20.	China	2	6	4
21.	Vietnam	2	4	4
22.	Mexico	0	5	12
23.	China	0	5	15
24.	Laos	0	15	15
25.	Japan	0	14	15
		X = 3.22	X = 9.92	X = 11.23

Raw Scores of Students
Attending All Sessions
Level E

Control Group

Subject #	Country	Pre-Test	Post-Test	Cloze
1.	China	6	13	12
2.	China	9	11	15
3.	China	8	13	13
4.	Vietnam	5	9	9
5.	Laos	4	6	9
6.	China	4	15	13
7.	Mexico	4	11	13
8.	Hong Kong	0	15	15
9.	Panama	0	13	15

X = 5.71 X = 8.69 X = 12.38

Experimental Group

Subject #	Country	Pre-Test	Post-Test	Cloze
10.	Laos	5	11	8
11.	Laos	7	14	10
12.	China	9	15	13
13.	China	9	13	11
14.	Japan	9	15	15
15.	Panama	5	15	15
16.	Laos	8	14	13
17.	Laos	0	0	0
18.	Mexico	0	14	15
19.	Vietnam	0	6	5

X = 7.43 X = 11.70 X = 10.80

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